SMSYZ^1WTGALITPCGPEEEKLPIX^1PLSNSLX^2RFHNKVYSTTSRSASLRAKKVTFDRVQV
LDAHYDSVLQDVKRAASKVSARLLTVEEACALTPPHSAKSRYGFGAKEVRSLSRRAVNHIR
SVWEDLLEDQHTPIDTTIMAKNEVFCIDPTKGGKKPARLIVYPDLGVRVCEKMALYDIAQK
LPKAIMGPSYGFQYSPAERVDFLLKAWGSKKDPMGFSYDTRCFDSTVTERDIRTEESIYQA
CSLPQEARTVIHSLTERLYVGGPMTNSKGQSCGYRRCRASGVFTTSMGNTMTCYIKALAAC
KAAGIVDPVMLVCGDDLVVISESQGNEEDERNLRAFTEAMTRYSAPPGDLPRPEYDLELIT
SCSSNVSVALDSRGRRRYFLTRDPTTPX^3TRAAWETVRHSPVNSWLGNIIQYAPTIWVRMVI
MTHFFSILLAQDTLNQNLNFEMYGAVYSVNPLDLPAIIERLHGLEAFSLHTYSPHELSRVA
ATLRKLGAPPLRAWKSRARAVRASLIAQGARAAICGRYLFNWAVKTKLKLTPLPEASRLDL
SGWFTVGAGGGDIYHSVSHARPRLLLLCLLLLSVGVGIFLLPDR

FIG. 1

TC$\mathbf{Y}^1$ATGTC$\mathbf{Y}^2$TAC$\mathbf{Y}^3$C$\mathbf{Y}^4$TGGAC$\mathbf{Y}^5$GG$\mathbf{Y}^6$GCC$\mathbf{Y}^7$T$\mathbf{Y}^8$AT$\mathbf{Y}^9$ACACCATGTGGGCCCGAAGAGG
AGAAGTTACCGATCA$\mathbf{X}^1$CCCTCTGAGTAATTCGCTCAT$\mathbf{X}^2$CGGTTCCATAATAAGGTGTACT
CCACAACCTCGAGGAGTGCCTCTCTGAGGGCAAAGAAGGTGACTTTTGACAGGGTGCAGGT
GCTGGACGCACACTATGACTCAGTCTTGCAGGACGTTAAGCGGGCCGCCTCTAAGGTTAGT
GCGAGGCTCCTCACGGTAGAGGAAGCCTGCGCGCTGACCCCGCCCCACTCCGCCAAATCGC
GATACGGATTTGGGGCAAAAGAGGTGCGCAGCTTATCTAGGAGGGCCGTTAACCACATCCG
GTCCGTGTGGGAGGACCTCCTGGAAGACCAACATACCCCAATTGACACAACTATCATGGCT
AAAAATGAGGTGTTCTGCATTGATCCAACTAAAGGTGGGAAAAAGCCAGCTCGCCTCATCG
TATACCCCGACCTTGGGGTCAGGGTGTGCGAAAGATGGCCCTCTATGACATCGCACAAAA
GCTTCCCAAAGCGATAATGGGGCCATCCTATGGGTTCCAATACTCTCCCGCAGAACGGGTC
GATTTCCTCCTCAAAGCTTGGGGAAGTAAGAAGGACCCAATGGGGTTCTCGTATGACACCC
GCTGCTTTGACTCAACCGTCACGGAGAGGGACATAAGAACAGAAGAATCCATATATCAGGC
TTGTTCTCTGCCTCAAGAAGCCAGAACTGTCATACACTCGCTCACTGAGAGACTTTACGTA
GGAGGGCCCATGACAAACAGCAAAGGGCAATCCTGCGGCTACAGGCGTTGCCGCGCAAGCG
GTGTTTTCACCACCAGCATGGGGAATACCATGACATGTTACATCAAAGCCCTTGCAGCGTG
TAAGGCTGCAGGGATCGTGGACCCTGTTATGTTGGTGTGTGGAGACGACCTGGTCGTCATC
TCAGAGAGCCAAGGTAACGAGGAGGACGAGCGAAACCTGAGAGCTTTCACGGAGGCTATGA
CCAGGTATTCCGCCCCTCCCGGTGACCTTCCCAGACCGGAATATGACTTGGAGCTTATAAC
ATCCTGCTCCTCAAACGTATCGGTAGCGCTGGACTCTCGGGGTCGCCGCCGGTACTTCCTA
ACCAGAGACCCTACCACTCCA$\mathbf{X}^3$TCACCCGAGCTGCTTGGGAAACAGTAAGACACTCCCCTG
TCAATTCTTGGCTGGGCAACATCATCCAGTACGCCCCCACAATCTGGGTCCGGATGGTCAT
AATGACTCACTTCTTCTCCATACTATTGGCCCAGGACACTCTGAACCAAAATCTCAATTTT
GAGATGTACGGGGCAGTATACTCGGTCAATCCATTAGACCTACCGGCCATAATTGAAAGGC
TACATGGGCTTGAAGCCTTTTCACTGCACACATACTCTCCCCACGAACTCTCACGGGTGGC
AGCAACTCTCAGAAAACTTGGAGCGCCTCCCCTTAGAGCGTGGAAGAGTCGGGCGCGTGCC
GTGAGAGCTTCACTCATCGCCCAAGGAGCGAGGGCGGCCATTTGTGGCCGCTACCTCTTCA
ACTGGGCGGTGAAAACAAAGCTCAAACTCACTCCATTGCCCGAGGCGAGCCGCCTGGATTT
ATCCGGGTGGTTCACCGTGGGCGCCGGCGGGGCGACATTTATCACAGCGTGTCGCATGCC
CGACCCCGCCTATTACTCCTTTGCCTACTCCTACTTAGCGTAGGAGTAGGCATCTTTTTAC
TCCCCGATCGATGA

FIG. 2

MAPITAYSQQTRGLLGCIITSLTGRDKNQVEGEVQVVSTATQSFLATCVNGVCWTVYHGAG
SKTLAGPKGPITQMYTNVDQDLVGWQAPPGARSLTPCTCGSSDLYLVTRHADVIPVRRRGD
SRGSLLSPRPVSYLKGSSGGPLLCPSGHAVGIFRAAVCTRGVAKAVDFVPVESMETTMRSP
VFTDNSSPPAVPQTFQVAHLHAPTGSGKSTKVPAAYAAQGYKVLVLNPSVAATLGFGAYMS
KAHGIDPNIRTGVRTITTGAPVTYSTYGKFLADGGCSGGAYDIIICDECHSTDSTTILGIG
TVLDQAETAGARLVVLATATPPGSVTVPHPNIEEVALSNTGEIPFYGKAIPIEAIRGGRHL
IFCHSKKKCDELAAKLSGLGINAVAYYRGLDVSVIPTIGDVVVVATDALMTGYTGDFDSVI
DCNTCVTQTVDFSLDPTFTIETTTVPQDAVSRSQRRGRTGRGRMGIYRFVTPGERPSGMFD
SSVLCECYDAGCAWYELTPAETSVRLRAYLNTPGLPVCQDHLEFWESVFTGLTHIDAHFLS
QTKQAGDNFPYLVAYQATVCARAQAPPPSWDQMWKCLIRLKPTLHGPTPLLYRLGAVQNEV
TLTHPITKYIMACMSADLEVVTSTWVLVGGVLAALAAYCLTTGSVVIVGRIILSGRPAIVP
DREFLYQEFDEMEECASHLPYIEQGMQLAEQFKQKALGLLQTATKQAEAAAPVVESKWRAL
ETFWAKHMWNFISGIQYLAGLSTLPGNPAIASLMAFTASITSPLTTQSTLLFNILGGWVAA
QLAPPSAASAFVGAGIAGAAVGSIGLGKVLVDILAGYGAGVAGALVAFKVMSGEMPSTEDL
VNLLPAILSPGALVVGVVCAAILRRHVGPGEGAVQWMNRLIAFASRGNHX^2SPTHYVPESDA
AARVTQILSSLTITQLLKRLHQWINEDCSTPCSGSWLRDVWDWICTVLTDFKTWLQSKLLP
QLPGVPFFSCQRGYKGVWRGDGIMQTTCPCGAQITGHVKNGSMRIVGPKTCSNTWHGTFPI
NAYTTGPCTPSPAPNYSRALWRVAAEEYVEVTRVGDFHYVTGMTTDNVKCPCQVPAPEFFT
EVDGVRLHRYAPACRPLLREEVTFQVGLNQYLVGSQLPCEPEPDVAVLTSMLTDPSHITAE
TAKRRLARGSPPSLASSSAIQLSAPSLKATCTTHHVSPDADLIEANLLWRQEMGGX^1ITRVE
SENKVVVLDSFDPLRAEEDEREVSVPAEILRKSKKFPAAMPIWARPDYNPPLLESWKDPDY
VPPVVHGCPLPPIKAPPIPPPRRKRTVVLTESSVSSALAELATKTFGSSESSAVDSGTATA
LPDQASDDGDKGSDVESYSSMPPLEGEPGDPDLSDGSWSTVSEEASEDVVCC

FIG. 3

ATGGCGCCCATCACGGCCTACTCCCAACAGACGCGGGGCCTACTTGGTTGCATCATCACTA
GCCTTACAGGCCGGGACAAGAACCAGGTCGAGGGAGAGGTTCAGGTGGTTTCCACCGCAAC
ACAATCCTTCCTGGCGACCTGCGTCAACGGCGTGTGTTGGACCGTTTACCATGGTGCTGGC
TCAAAGACCTTAGCCGGCCCAAAGGGGCCAATCACCCAGATGTACACTAATGTGGACCAGG
ACCTCGTCGGCTGGCAGGCGCCCCCCGGGGCGCGTTCCTTGACACCATGCACCTGTGGCAG
CTCAGACCTTTACTTGGTCACGAGACATGCTGACGTCATTCCGGTGCGCCGGCGGGGCGAC
AGTAGGGGGAGCCTGCTCTCCCCCAGGCCTGTCTCCTACTTGAAGGGCTCTTCGGGTGGTC
CACTGCTCTGCCCTTCGGGGCACGCTGTGGGCATCTTCCGGGCTGCCGTATGCACCCGGGG
GGTTGCGAAGGCGGTGGACTTTGTGCCCGTAGAGTCCATGGAAACTACTATGCGGTCTCCG
GTCTTCACGGACAACTCATCCCCCCCGGCCGTACCGCAGACATTTCAAGTGGCCCACCTAC
ACGCTCCCACTGGCAGCGGCAAGAGTACTAAAGTGCCGGCTGCATATGCAGCCCAAGGGTA
CAAGGTGCTCGTCCTCAATCCGTCCGTTGCCGCTACCTTAGGGTTTGGGGCGTATATGTCT
AAGGCACACGGTATTGACCCCAACATCAGAACTGGGGTAAGGACCATTACCACAGGCGCCC
CCGTCACATACTCTACCTATGGCAAGTTTCTTGCCGATGGTGGTTGCTCTGGGGGCGCTTA
TGACATCATAATATGTGATGAGTGCCATTCAACTGACTCGACTACAATCTTGGGCATCGGC
ACAGTCCTGGACCAAGCGGAGACGGCTGGAGCGCGGCTTGTCGTGCTCGCCACCGCTACGC
CTCCGGGATCGGTCACCGTGCCACACCCAAACATCGAGGAGGTGGCCCTGTCTAATACTGG
AGAGATCCCCTTCTATGGCAAAGCCATCCCCATTGAAGCCATCAGGGGGGGAAGGCATCTC
ATTTTCTGTCATTCCAAGAAGAAGTGCGACGAGCTCGCCGCAAAGCTGTCAGGCCTCGGAA
TCAACGCTGTGGCGTATTACCGGGGGCTCGATGTGTCCGTCATACCAACTATCGGAGACGT
CGTTGTCGTGGCAACAGACGCTCTGATGACGGGCTATACGGGCGACTTTGACTCAGTGATC
GACTGTAACACATGTGTCACCCAGACAGTCGACTTCAGCTTGGATCCCACCTTCACCATTG
AGACGACGACCGTGCCTCAAGACGCAGTGTCGCGCTCGCAGCGGCGGGGTAGGACTGGCAG
AGGTAGGATGGGCATCTACAGGTTTGTGACTCCGGGAGAACGGCCCTCGGGCATGTTCGAT
TCCTCGGTCCTGTGTGAGTGCTATGACGCGGGCTGTGCTTGGTACGAGCTCACCCCCGCCG
AGACCTCGGTTAGGTTGCGGGCCTACCTGAACACACCAGGGTTGCCCGTTTGCCAGGACCA
CCTGGAGTTCTGGGAGAGTGTCTTCACAGGCCTCACCCACATAGATGCACACTTCTTGTCC
CAGACCAAGCAGGCAGGAGACAACTTCCCCTACCTGGTAGCATACCAAGCCACGGTGTGCG
CCAGGGCTCAGGCCCCACCTCCATCATGGGATCAAATGTGGAAGTGTCTCATACGGCTGAA
ACCTACGCTGCACGGGCCAACACCCTTGCTGTACAGGCTGGGAGCCGTCCAAAATGAGGTC
ACCCTCACCCACCCCATAACCAAATACATCATGGCATGCATGTCGGCTGACCTGGAGGTCG
TCACTAGCACCTGGGTGCTGGTGGGCGGAGTCCTTGCAGCTCTGGCCGCGTATTGCCTGAC
AACAGGCAGTGTGGTCATTGTGGGTAGGATTATCTTGTCCGGGAGGCCGGCTATTGTTCCC
GACAGGGAGTTTCTCTACCAGGAGTTCGATGAAATGGAAGAGTGCGCCTCGCACCTCCCTT
ACATCGAGCAGGGAATGCAGCTCGCCGAGCAATTCAAGCAGAAAGCGCTCGGGTTACTGCA
AACAGCCACCAAACAAGCGGAGGCTGCTGCTCCCGTGGTGGAGTCCAAGTGGCGAGCCCTT
GAGACATTCTGGGCGAAGCACATGTGGAATTTCATCAGCGGGATACAGTACTTAGCAGGCT
TATCCACTCTGCCTGGGAACCCCGCAATAGCATCATTGATGGCATTCACAGCCTCTATCAC
CAGCCCGCTCACCACCCAAAGTACCCTCCTGTTTAACATCTTGGGGGGGTGGGTGGCTGCC
CAACTCGCCCCCCCCAGCGCCGCTTCGGCTTCGTGGGCGCCGGCATCGCCGGTGCGGCTG
TTGGCAGCATAGGCCTTGGGAAGGTGCTTGTGGACATTCTGGCGGGTTATGGAGCAGGAGT
GGCCGGCGCGCTCGTGGCCTTCAAGGTCATGAGCGGCGAGATGCCCTCCACCGAGGACCTG
GTCAATCTACTTCCTGCCATCCTCTCTCCTGGCGCCCTGGTCGTCGGGGTCGTGTGTGCAG
CAATACTGCGTCGACACGTGGGTCCGGGAGAGGGGGCTGTGCAGTGGATGAACCGGCTGAT
AGCGTTCGCCTCGCGGGGTAATCATGX^{2}TTCCCCCACGCACTATGTGCCTGAGAGCGACGCC
GCAGCGCGTGTTACTCAGATCCTCTCCAGCCTTACCATCACTCAGCTGCTGAAAAGGCTCC
ACCAGTGGATTAATGAAGACTGCTCCACACCGTGTTCCGGCTCGTGGCTAAGGGATGTTTG
GGACTGGATATGCACGGTGTTGACTGACTTCAAGACCTGGCTCCAGTCCAAGCTCCTGCCG

FIG. 4A

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CAGCTACCGGGAGTCCCTTTTTTTCTCGTGCCAACGCGGGTACAAGGGAGTCTGGCGGGGAG
ACGGCATCATGCAAACCACCTGCCCATGTGGAGCACAGATCACCGGACATGTCAAAAACGG
TTCCATGAGGATCGTCGGGCCTAAGACCTGCAGCAACACGTGGCATGGAACATTCCCCATC
AACGCATACACCACGGGCCCCTGCACACCCTCTCCAGCGCCAAACTATTCTAGGGCGCTGT
GGCGGGTGGCCGCTGAGGAGTACGTGGAGGTCACGCGGGTGGGGGATTTCCACTACGTGAC
GGGCATGACCACTGACAACGTAAAGTGCCCATGCCAGGTTCCGGCTCCTGAATTCTTCACG
GAGGTGGACGGAGTGCGGTTGCACAGGTACGCTCCGGCGTGCAGGCCTCTCCTACGGGAGG
AGGTTACATTCCAGGTCGGGCTCAACCAATACCTGGTTGGGTCACAGCTACCATGCGAGCC
CGAACCGGATGTAGCAGTGCTCACTTCCATGCTCACCGACCCCTCCCACATCACAGCAGAA
ACGGCTAAGCGTAGGTTGGCCAGGGGGTCTCCCCCCTCCTTGGCCAGCTCTTCAGCTATCC
AGTTGTCTGCGCCTTCCTTGAAGGCGACATGCACTACCCACCATGTCTCTCCGGACGCTGA
CCTCATCGAGGCCAACCTCCTGTGGCGGCAGGAGATGGGCGGGA**X**^{1}CATCACCCGCGTGGAG
TCGGAGAACAAGGTGGTAGTCCTGGACTCTTTCGACCCGCTTCGAGCGGAGGAGGATGAGA
GGGAAGTATCCGTTCCGGCGGAGATCCTGCGGAAATCCAAGAAGTTCCCCGCAGCGATGCC
CATCTGGGCGCGCCGGATTACAACCCTCCACTGTTAGAGTCCTGGAAGGACCCGGACTAC
GTCCCTCCGGTGGTGCACGGGTGCCCGTTGCCACCTATCAAGGCCCCTCCAATACCACCTC
CACGGAGAAAGAGGACGGTTGTCCTAACAGAGTCCTCCGTGTCTTCTGCCTTAGCGGAGCT
CGCTACTAAGACCTTCGGCAGCTCCGAATCATCGGCCGTCGACAGCGGCACGGCGACCGCC
CTTCCTGACCAGGCCTCCGACGACGGTGACAAAGGATCCGACGTTGAGTCGTACTCCTCCA
TGCCCCCCCTTGAGGGGGAACCGGGGGACCCCGATCTCAGTGACGGGTCTTGGTCTACCGT
GAGCGAGGAAGCTAGTGAGGATGTCGTCTGCTGC

FIG. 4B

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GCCTCCAAAGCCGCCCTCATTGAGGAAGGGCAGCGGATGGCGGAGATGCTCAAATCTAAGATACAAGGCCTCCT
ACAACAGGCCACAAGGCAAGCTCAAGACATACAGCCAGCTATACAGTCATCATGGCCCAAGCTTGAACAATTTT
GGGCCAAACACATGTGGAACTTCATCAGTGGTATACAGTACCTAGCAGGACTCTCCACCCTACCGGGAAATCCT
GCAGTAGCATCAATGATGGCTTTTAGCGCCGCGCTGACTAGCCCACTACCCACCAGCACCACCATCCTCTTGAA
CATCATGGGAGGATGGTTGGCCTCTCAGATTGCCCCCCCTGCCGGAGCCACTGGCTTCGTTGTCAGTGGTCTAG
TGGGGGCGGCCGTCGGAAGCATAGGCCTGGGTAAGATACTGGTGGACGTTTTGGCCGGGTACGGCGCAGGCATT
TCAGGGGCCCTCGTAGCTTTTAAGATCATGAGCGGCGAGAAGCCCACGGTAGAAGACGTTGTGAATCTCCTGCC
TGCTATTCTGTCTCCTGGTGCGTTGGTAGTGGGAGTCATCTGTGCAGCAATCCTGCGTCGACACGTGGGTCCGG
GAGAGGGGGCTGTGCAGTGGATGAACCGGCTGATAGCGTTCGCCTCGCGGGGTAATCAT**GCT**TCCCCCACGCAC
TATGTGCCTGAGAGCGACGCCGCAGCGCGTGTTACTCAGATCCTCTCCAGCCTTACCATCACTCAGCTGCTGAA
AAGGCTCCACCAGTGGATTAATGAAGACTGCTCCACACCGTGT
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FIG. 5A

ASKAALIEEGQRMAEMLKSKIQGLLQQATRQAQDIQPAIQSSWPKLEQFWAKHMWNFISGIQYLAGLSTLPGNP
AVASMMAFSAALTSPLPTSTTILLNIMGGWLASQIAPPAGATGFVVSGLVGAAVGSIGLGKILVDVLAGYGAGI
SGALVAFKIMSGEKPTVEDVVNLLPAILSPGALVVGVICAAILRRHVGPGEGAVQWMNRLIAFASRGNHASPTH
YVPESDAAARVTQILSSLTITQLLKRLHQWINEDCSTPC

FIG. 5B